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STUDY OF VARIABLES ASSOCIATED WITH FINAL GRADES IN MATHEMATICS COURSES.

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THIS STUDY WAS CONDUCTED IN ORDER TO DETERMINE THE RELATIVE VALUE OF PREVIOUS GRADES IN MATHEMATICS COURSES, THE OVERALL HIGH SCHOOL GRADE POINT AVERAGE, AND THE PLACEMENT TEST IN MATHEMATICS DEVELOPED AT THE COLLEGE AS PREDICTORS OF ACHIEVEMENT IN INTRODUCTORY AND INTERMEDIATE ALGEBRA, IN COLLEGE ALGEBRA, IN TRIGONOMETRY, AND IN ANALYTIC GEOMETRY AND CALCULUS. A CORRELATION MATRIX FOR EACH OF THE COURSES WAS PREPARED. FINAL GRADES IN THE INTRODUCTORY AND INTERMEDIATE ALGEBRA COURSES CORRELATED MOST HIGHLY WITH GRADES EARNED IN PREVIOUSLY TAKEN MATHEMATICS COURSES. THE LOWEST CORRELATIONS WERE FOUND BETWEEN THE FINAL GRADES WHICH STUDENTS MADE IN THESE COURSES AND THEIR SCORES ON THE QUALIFYING PLACEMENT TESTS. FOR THE TWO MORE ADVANCED COURSES, HOWEVER, THE HIGHEST CORRELATIONS WERE FOUND BETWEEN THE FINAL COURSE GRADES AND THE SCORES MADE ON THE QUALIFYING PLACEMENT TEST. (AL)

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PASADENA CITY COLLEGE

Pasadena, California

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PROBLEM:

At the present time Pasadena City College students who wish to enroll in classes in the Mathematics Department must first take and pass a qualifying placement test which has been developed by the Mathematics Department. Although there are some exceptions to this general policy, still a sizeable number of placement tests, approximately 2000, were given for the Mathematics Department during the 1964-65 academic year. The question has been raised regarding the relative value of using previous grades in mathematics courses, the over-all high school grade point average, and the placement test in predicting success or failure in the mathematics courses. This research was designed to study how these variables were related to success and failure during the Fall Semester 1964 for the following courses:

Mathematics Q3 - Introductory Algebra
Mathematics 1 - Intermediate Algebra
Mathematics 3 - Intermediate Algebra
Mathematics 4A - College Algebra and Trigonometry
Mathematics 5A - Analytic Geometry and Calculus

PROCEDURE:

Final grades were obtained for students in Mathematics Q3, 1, 3, 4A and 5A for the Fall Semester 1964. This final grade, the student's qualifying placement test score, an average of his previous mathematics grades, and his over-all high school grade point average were punched into IBM cards. A correlation matrix for these variables was then obtained by using program BIMD No. 34 developed by the UCLA Medical Center and run on the IBM 7094 Data Processing System of the Western Data Processing Center.

RESULTS:

The correlation matrices for each of the mathematics courses are given on the following pages.

Variables

Variable 1 - High School Grade Point Average.
Variable 2 - Average grade in previously-taken mathematics courses.
Variable 3 - Score on appropriate mathematics qualifying test.
Variable 4 - Final grade in mathematics courses.

MATHEMATICS Q3 - N: 261

		1	2	3
HIGH SCHOOL GPA	- Var 1			
MATH AV	- Var 2	.42053		
QUAL TEST	- Var 3	-.02290	.16244	
FINAL GRADE	- Var 4	.20813	.27832	.18811

MATHEMATICS 1 - N: 50

		1	2	3
HIGH SCHOOL GPA	- Var 1			
MATH AV	- Var 2	.46138		
QUAL TEST	- Var 3	-.22511	-.04930	
FINAL GRADE	- Var 4	.23467	.23934	.12134

MATHEMATICS 3 - N: 161

		1	2	3
HIGH SCHOOL GPA	- Var 1			
MATH AV	- Var 2	.33385		
QUAL TEST	- Var 3	.09704	.07856	
FINAL GRADE	- Var 4	.33287	.45674	.12577

MATHEMATICS 4A - N: 72

		1	2	3
HIGH SCHOOL GPA	- Var 1			
MATH AV	- Var 2	.18957		
QUAL TEST	- Var 3	-.06040	-.23310	
FINAL GRADE	- Var 4	.18599	.02951	.31236

MATHEMATICS 5A - N: 104

HIGH SCHOOL GPA	- Var 1			
MATH AV	- Var 2	1 .38617		
QUAL TEST	- Var 3	1 .00928	2 .13728	
FINAL GRADE	- Var 4	1 .14715	2 .20684	3 .33137

SUMMARY:

Final grades in the Mathematics Q3, Mathematics 1 and Mathematics 3 courses correlated most highly with grades earned in previously taken mathematics courses. The lowest correlations were found between the final grades which students made in these courses and their scores on the qualifying placement tests.

For the courses Mathematics 4A and 5A, the highest correlations were found between the final course grades and the scores made on the qualifying placement tests.